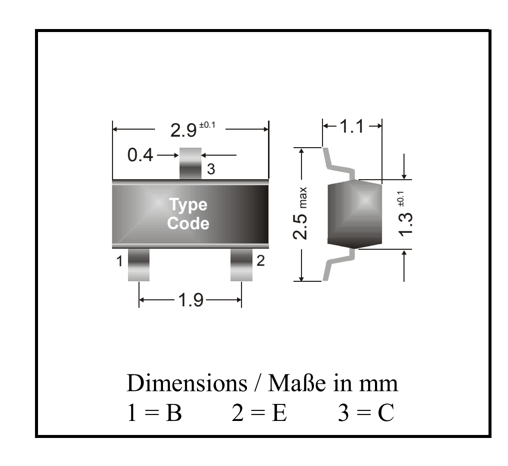
NPN **Surface mount Si-Epitaxial PlanarTransistors** NPN
Si-Epitaxial PlanarTransistoren für die Oberflächenmontage



Dimensions / Maße in mm
1 = B 2 = E 3 = C

Power dissipation – Verlustleistung	250 mW
Plastic case Kunststoffgehäuse	SOT-23 (TO-236)
Weight approx. – Gewicht ca.	0.01 g

Plastic material has UL classification 94V-0
Gehäusematerial UL94V-0 klassifiziert

Standard packaging taped and reeled
Standard Lieferform gegurtet auf Rolle

Maximum ratings ($T_A = 25^\circ$C) **Grenzwerte ($T_A = 25^\circ$C)**

			BCW 60
Collector-Emitter-voltage	B open	V_{CE0}	32 V
Collector-Base-voltage	E open	V_{CB0}	32 V
Emitter-Base-voltage	C open	V_{EB0}	5 V
Power dissipation – Verlustleistung		P_{tot}	250 mW [1])
Collector current – Kollektorstrom (DC)		I_C	100 mA
Peak Collector current – Kollektor-Spitzenstrom		I_{CM}	200 mA
Peak Base current – Basis-Spitzenstrom		I_{BM}	200 mA
Junction temperature – Sperrschichttemperatur		T_j	150˚C
Storage temperature – Lagerungstemperatur		T_S	- 65…+ 150˚C

Characteristics ($T_j = 25^\circ$C) **Kennwerte ($T_j = 25^\circ$C)**

		Min.	Typ.	Max.
Collector-Base cutoff current – Kollektorreststrom				
$I_E = 0$, $V_{CB} = 32$ V	I_{CB0}	–	–	20 nA
$I_E = 0$, $V_{CB} = 32$ V, $T_j = 150^\circ$C	I_{CB0}	–	–	20 µA
Emitter-Base cutoff current – Emitterreststrom				
$I_C = 0$, $V_{EB} = 4$ V	I_{EB0}	–	–	20 nA
Collector saturation volt. – Kollektor-Sättigungsspg. [2])				
$I_C = 10$ mA, $I_B = 0.25$ mA	V_{CEsat}	50 mV		350 mV
$I_C = 50$ mA, $I_B = 1.25$ mA	V_{CEsat}	100 mV		550 mV

[1]) Mounted on P.C. board with 3 mm² copper pad at each terminal
Montage auf Leiterplatte mit 3 mm² Kupferbelag (Lötpad) an jedem Anschluß
[2]) Tested with pulses $t_p = 300$ µs, duty cycle ≤ 2% – Gemessen mit Impulsen $t_p = 300$ µs, Schaltverhältnis ≤ 2%

Characteristics ($T_j = 25°C$) **Kennwerte ($T_j = 25°C$)**

			Min.	Typ.	Max.
Base saturation voltage – Basis-Sättigungsspannung [1]					
$I_C = 10$ mA, $I_B = 0.25$ mA		V_{BEsat}	600 mV	–	850 mV
$I_C = 50$ mA, $I_B = 1.25$ mA		V_{BEsat}	700 mV	–	1050 mV
DC current gain – Kollektor-Basis-Stromverhältnis [1]					
$V_{CE} = 5$ V, $I_C = 10$ µA	BCW 60B	h_{FE}	20	–	–
	BCW 60C	h_{FE}	40	–	–
	BCW 60D	h_{FE}	100	–	–
$V_{CE} = 5$ V, $I_C = 2$ mA	BCW 60B	h_{FE}	180	–	310
	BCW 60C	h_{FE}	250	–	460
	BCW 60D	h_{FE}	380	–	630
$V_{CE} = 1$ V, $I_C = 50$ mA	BCW 60B	h_{FE}	70	–	–
	BCW 60C	h_{FE}	90	–	–
	BCW 60D	h_{FE}	100	–	–
Base-Emitter voltage – Basis-Emitter-Spannung [1]					
$V_{CE} = 5$ V, $I_C = 10$ µA		V_{BEon}	–	520 mV	–
$V_{CE} = 5$ V, $I_C = 2$ mA		V_{BEon}	550 mV	650 mV	700 mV
$V_{CE} = 1$ V, $I_C = 50$ mA		V_{BEon}	–	780 mV	–
Gain-Bandwidth Product – Transitfrequenz					
$V_{CE} = 5$ V, $I_C = 10$ mA, f = 100 MHz		f_T	100 MHz	250 MHz	–
Collector-Base Capacitance – Kollektor-Basis-Kapazität					
$V_{CB} = 10$ V, $I_E = i_e = 0$, f = 1 MHz		C_{CB0}	–	1.7 pF	–
Emitter-Base Capacitance – Emitter-Basis-Kapazität					
$V_{EB} = 0.5$ V, $I_C = i_c = 0$, f = 1 MHz		C_{EB0}	–	11 pF	–
Noise figure – Rauschzahl					
$V_{CE} = 5$ V, $I_C = 200$ µA, $R_G = 2$ kΩ, f = 1 kHz, Δf = 200 Hz		F	–	2 dB	6 dB

Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft	R_{thA}	420 K/W [2]
Recommended complementary PNP transistors Empfohlene komplementäre PNP-Transistoren	BCW 61 series	

Marking – Stempelung	BCW 60B = AB	BCW 60C = AC	BCW 60D = AD

[1]) Tested with pulses $t_p = 300$ µs, duty cycle ≤ 2% – Gemessen mit Impulsen $t_p = 300$ µs, Schaltverhältnis ≤ 2%
[2]) Mounted on P.C. board with 3 mm^2 copper pad at each terminal
Montage auf Leiterplatte mit 3 mm^2 Kupferbelag (Lötpad) an jedem Anschluß